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EFFECTS OF *Brucea javanica* SEED EXTRACT ON FETAL IMPLANTATION AND ESTROGEN AND PROGESTERONE LEVELS IN FEMALE ICR MICE

BY

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DECLARATION

I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions.

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ABSTRACT

EFFECTS OF *Brucea javanica* SEED EXTRACT ON FETAL IMPLANTATION AND ESTROGEN AND PROGESTERONE LEVELS IN FEMALE ICR MICE

Brucea javanica (Buah Makassar) a common herbicious plants in Asia, are widely used in traditional medicine for treating some. However, there is lack of reports with regards to its usage in treating reproductive functions. There is possibility that this herb may affect some reproductive functions. This research was therefore endeavoured to determine the possible effects of *Brucea javanica* extracted from the seeds on mice implantation function. Concurrently, a hormonal study was also done to determine the level of both gonadal hormones important for reproductive functions, estrogen and progesterone during pregnancy with the treatment with the seed extracts. Thirty-two pregnant female ICR mice were divided into four groups of eight each. Group A was given distilled water as control while groups B, C, and D were given oral daily doses of 500, 800, and 1000 mg/kg body weights of *Brucea javanica* seed extract respectively. Treatment were done for fourteen days. Observations were made as to determine the physical effects of the treatment. Laparotomy was done at day seventeen of the pregnancy to determine number of fetal implantations. Blood samples were collected determination of the hormones. Results obtained showed no significant changes to the number of fetal implantation to all groups. Similarly, there was no significant change in hormonal levels and no obvious change in the physical attributes of the mice. These findings suggest that *Brucea javanica* seed extract have no effect in implanted foetuses and seem to be safe to be taken during pregnancy.

CHAPTER 1

INTRODUCTION

1.1 Background of study

1.1.1 Female reproductive cycle.

The reproductive cycle in rodents is called the estrous cycle which lasts approximately 4-5 days (Caligioni, 2010). The female reproductive system is influenced by hormonal system consisted of the hypothalamus, the pituitary gland and known as hypothalamic– pituitary–gonadal (HPG) axis (Emanuele *et al.*, 1997). The ovary is central to female reproductive function as it is the site in which follicles are developed until mature and produce ova. The ovary also produces sex hormones which are the estrogen and progesterone. The secretion of these two hormones are influenced by the presence of follicle stimulating hormone (FSH) and leutinizing hormone (LH) which are secreted from the anterior pituitary. The secretion of both the pituitary hormones is controlled by the hypothalamus, Stefansdottir *et al* (2014) thus the HPG axis. The activities and functions of the reproductive system can be influenced by external factors such as plant chemical (Ak *et al.*, 2012). Some plant chemical such as *Achyranthes aspera* L. study by Shibeshi *et al* (n.d.) on fetal abortion influence on the fertility aspects through their actions on the hypothalamo-pituitary-gonadal axis or have hormonal effects resulting in inhibition of ovarian steroidogenesis (Vishwanatha *et al.*, 2009).